

## BIDS.

**HINTONBURG, ONT.**—Three tenders have been received for erection of pump house for waterworks system, from T. A. Stott, this village, Cowan & Dolan, Ottawa, and Wm. Garvick, Ottawa.

**CHATHAM, ONT.**—The following tenders were received for granolithic sidewalks: Silica Barytic Stone Co., Ingersoll, 19 cents per square foot; Guelph Pavement Co., 12 cents; Thos. Kime, 15 cents; W. H. Carswell, 14½ cents. Tenders have been referred to Board of Works, but it is probable that the Guelph Pavement Company will be awarded the contract.

**NANAIMO, B. C.**—Tenders for supply of a steam fire engine were received by the city as follows: Merryweather & Son, London, England—price on London docks, £828; in Montreal, £860. J. A. Ronald & Co., Brussels, Ontario—price delivered in Nanaimo, \$3,950. Shand, Mason & Co., London, England—price £800 on London docks. Tenders referred to fire wardens for a report.

**OTTAWA, ONT.**—Seven tenders for pumping machinery for the waterworks system were opened by the council last week, as follows: Chaudiere Machine and Foundry company—triplex 7, \$37,630; 2 duplex 7, \$36,650; water wheel alone, \$9,310. H. B. Merrill, for Worthington Pump Company, New York—2.48 wheels, \$7,475; 7 mil. 2 duplex, \$23,625; 7 mil. 2.54 duplex wheels, \$9,875; 10 mil. 2 triplex, \$33,500; 2.42 triplex wheels, \$7,500. Jenckes Machine Company, Sherbrooke, Que.—2 35 triplex wheels, \$3,500. Kerr Engine Company, Walkerville, Ont.—1 duplex wheel, \$26,385; 2 duplex wheels, \$32,905. R. D. Wood, Philadelphia—1 10 mil. \$53,000; 2 5 mil., \$44,300; 3 7 mil., \$39,400; 4 14 million, \$67,460. The Northey Company, Toronto—2 pairs duplex wheels, \$32,310; 2 pairs duplex wheels, \$36,430; 2 pairs triplex, \$8,450; 2 pairs triplex, \$53,790. The Holly Company, Lockport, N. Y.—2 duplex pumps, \$23,729. Stillwell, Bierce Company, Dayton, Ohio—2 duplex pumps, \$56,000.



## PORTLAND CEMENT.

The following conditions are enforced by the Russian Government in selecting Portland cement:—

1. Casks of cement furnished for building purposes are to be of uniform weight, say, 180 kilos gross and 170 kilos net. That upon each cask be plainly stamped the trade mark of the factory and the weight, both gross and net. That the loss of cement from spilling and for difference in filling casks should not exceed 2 per cent.

2. Cement intended for building purposes should always be of the slow setting kind, for such cements are more easily worked, are more reliable and possess greater power of adhesion. Cement is considered slow setting when it does not set before the expiration of three-fourths of an hour after mixing the paste. Portland cement hardens more slowly as the temperature falls; therefore, to avoid misunderstandings, all tests should be conducted in a room having a uniform temperature of 15 to 18 deg. centigrade, and only water of about the same temperature should be used. During the process of setting slow-hardening cements generate but little heat, while with the quick setting a considerable rise of temperature may ensue. To ascertain the time of setting, a cake of pure cement, prepared upon a glass plate, is taken. After the lapse of the above-mentioned time this cake must have acquired such a degree of hardness that the passage of a finger-nail gently grating it should leave no trace and no water ooze out when the surface of the cake is lightly rubbed.

3. A cement cake prepared upon a glass plate and immersed in water some time after setting should, after remaining

under water twenty-eight days, show no cracks or warping on its edge.

4. Portland cement must be milled into as fine a powder as possible. After passing through a sieve of 900 openings to the square centimetre, there should in no case remain upon the sieve a residue exceeding 20 per cent.

5. The adhesive power of Portland cement is determined by submitting to tests of rupture a mixture of cement and sand, seven and twenty-eight days after making the mortar, and also the pure cement after seven days. The tests must be made with the same apparatus, with samples of similar section, in an identical manner. For normal tests normal sand is employed, prepared from natural quartz sand, which is passed through a series of sieves and washed. The section of samples at the point submitted to rupture must be 5 square centimetres. In making samples, all their component parts must be taken by weight.

6. A mixture of one part of cement to three of normal sand twenty-eight days after setting must bear, as its minimum power of resistance to rupture, a strain of 8 kilograms to the square centimetre. Normal sand used in massing samples is prepared thus:—A quantity of natural sand is passed through sieves of 64, 121 and 225 meshes to the square centimetre. Next, the portion which shall have remained upon the sieve of 64 meshes, and that passed through the sieve of 225 meshes, are thrown away, and the sand remaining on sieves of 121 and 225 meshes is mixed in equal parts; this mixture constitutes normal sand. To make cement paste or mortar, water is added in the proportion of 50 per cent. by weight of pure cement, or 12½ per cent. by weight of the dry mixture of cement and sand. This rule is to be applied if the manufacturer whose cement is being tested does beforehand state what proportion of water is best used with his cement. To attain all possible uniformity of quality, in cases where cement of the same brand is received in several lots, tests of pure cement are made.

(To be Continued.)

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HIGH GRADE GERMAN BRANDS FOR GRANOLITHIC AND ARTIFICIAL STONE SIDEWALKS.

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HIGHEST CLASS PORTLAND CEMENT

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Fineness:—residue on 100 sieve, 4.45%.

Tensile strength: neat: 7 days, 629 lb.

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